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UNIVERSITY OF QUEENSLAND

Prentice Computer Centre

NEWSLETTER

authorization: Director of the Centre

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2 NEW CENTRAL COMPUTING EQUIPMENT

A contract with Digital Equipment Australia Pty. Ltd. was signed on 28 July 1977 for the supply of a DEC1090 Computer System. This followed a public tender and detailed assessment by a Working Party appointed by and responsible to the Computing Policy Committees of the University of Queensland and Griffith University.

Details of the equipment ordered from DEA are as follows:

1 x KL10B Processor
1 x 512K Memory
3 x RPO6 Disk Drives
2 x TU45 9-Track Tape Drives
1 x LP100 Line Printer
1 x DN87S Communications SubSystem.

The KL10B Processor is compatible with the current KA10 processors with additional hardware instructions for double precision integer and floating point arithmetic plus 19 business instructions to enhance the speed of commercial applications. A 2K cache memory with 160 nsec. access time allows programs to run considerably faster than the main memory speed.

Up to eight data channels are integrated within the processor and four internal data paths allow connection of PDP11 mini-computers. One of these paths connects a diagnostic computer,completely replacing the traditional "lights and switches" console for system loading, examination and on-line diagnostics. The remaining paths connect communications subsystems. The hardware supports up to four processor configurations.

Memory is four-way interleaved since the processor is capable of fetching four simultaneous words from memory. The processor can address up to 4096K of physical memory. Paging hardware supports virtual memory operations.

The RP06 disk drives each have a capacity of 200M bytes and transfer at a rate of 800,000 bytes/second (current RP03's are 60M at 320Kb). They are connected on two separate channels. The TU45 magnetic tape units work at 75 inches/second at either 800bpi (NRZ1) or 1600bpi (Phase Encoded) for a maximum transfer rate of 120,000 bytes/second. The LP100 printer is a very high quality train printer which will print at a speed of 1200 lpm with the 64 character set.

The DN76S communications subsystem consists of a PDP11/40 mini-computer capable of supporting both synchronous and asynchronous transmission. The initial configuration will include 64 asynchronous terminal lines and four synchronous lines for the remote batch stations.

Users of the new system should notice little apparent difference since the TOPS10 monitor is virtually identical to the version currently running. The major initial advantage from the new system is additional capacity.

Our current planning is that installation acceptance tests and general tooling up for operational use will take place during December 1977, January and February 1978. Our target is to have the new equipment available for use by first semester 1978.

One of the two central processors and the original memory of 48,000 words will be traded-in three months following acceptance of the new equipment. Thus, within this period, there must be a progressive and hopefully well ordered transfer of some users on the KA system to the KL system. As far as possible, the effective charge rates on both systems will be the same.

It should also be noted that the initial configuration includes only 64 communications lines as compared with the 128 lines now connected to the KA system. It is planned to increase the number of lines on the KL system during 1978/79. Thus, initially, it will be possible to transfer only half the current users to the KL system.

Obviously, we are currently at an early period in the planning of the implementation of the new system. Broadly speaking, larger jobs and particularly those with high computation component will gain greater advantage on the KL system. Whatever we do, there will be a transition period as facilities are moved from one system to another. In general, the long term objective will be for the KA system to offer less specialized facilities so that it may run more or less without operator intervention and thus keep our operating costs to a minimum.

Initially, however, some prescribed shifts of work will need to be made if we are to make use of the new capacity and lighten the load on the existing system. We envisage that the majority of computer centre terminals will move to the new system immediately after acceptance and, as soon as possible, the heavy administration load will be diverted from the KA system. Remote batch stations, other than the Hawken Station, together with terminals in the precinct associated with the batch station will move to the KL10B system. We would like to provide a facility whereby terminals remaining connected to the KA system can also log into the KL system. However, until we receive sufficient detail to study the feasibility and cost of such a strategy, it is not possible to assume that we can in fact provide this capability. Thus, initially, there will be some selection in terms of terminals to be connected to the KL system and work which would benefit from hardware floating point and virtual memory capability would appear to be best placed on the KL system. Users who have a batch requirement only should use the KL system.

We have also been asked what will be the impact of the additional capacity on present restrictions and charge rates. Again, I can only speak of our intentions at this stage. Our hopes are:

(a) That the present limitation of 400 blocks on logged out quotas will be increased and ultimately except for a very high default to protect users against runaway jobs removed completely;

(b) That the core limit will be increased from 32K to 40K.

(c) That the internal charge rate will be reduced from 1.3.78 by abolishing the job slot connect time and core utilization charge by 25%. This will provide an overall 20% increase in usage for the same expenditure. As far as possible,

effective charges on both systems will be the same.

I am sorry that I cannot be more definite at this stage, but I will keep users informed. I am sure also that there are many matters of interest and concern to users which I have not covered in this report. I would be pleased therefore to attend staff meetings within departments and answer questions. Please let me know if I can help in this way.

DIRECTOR

3 SYSTEM SECURITY

Passwords: Again we remind users to change passwords frequently. Passwords should be more than three characters and avoid usual codes such as initials.

File Security: The system default file protection is <055>. This means that unless users explicitly change file protection to say 057, then any other users of the system can read and execute their files. The full details of the protection code are provided in Section 6.3.3 of Technical Manual No.2 "Using the PDP10 System".

Users with particularly sensitive data may gain further security of their files by protecting their whole User File Directory (UFD). The PROTECT command may be used to change protection on the whole UFD so as to prevent access to any files in the UFD regardless of their individual protection.

.PROTECT DEV:[P,PN].UFD<nnn> <cr>

where nnn is the protection field defining the three classes of access:- owner, project members and others as for normal file protection.

However, nnn take different values than for normal file protection, thus <770> allows full access to the UFD to the UFD's owner and others in the same project and no access to other users outside the project, example

.PROTECT DSKE:[256,112].UFD<770> <cr>

protects all files on 256,112 against access to users outside Project 256.

The value 7 for n allows full access privileges, the value Ø allows no access privileges.

The full list of codes and the operations which each permits follows:

CODE	PERMITTED OPERATION(S)
0	Access not permitted
1	The directory may be read as a file
2	CREATEs are permitted
3	The directory may be read as a file and CREATEs are permitted
4	LOOKUPs are permitted
5	The directory may be read as a file and LOOKUPs are permitted
6	CREATEs and LOOKUPs are both permitted
7	The directory may be read as a file and both CREATEs and LOOKUPs are permitted.

4 CLUSTR MANUALS

Copies of the users manual for the suite of numerical taxonomy programs are now available. They may be purchased at the job receipt area of the batch station in the Hawken Building for a cost of $2.50.

The only changes to the system as documented in the manual draft dated 12 January 1977 are as follows:

(i) TAXAN style printed output of the dendrogram fusions can now be optionally obtained in CLUSTR. Previously, plotted output only was obtainable. The options specifications in columns 37-40 of the options card is now

L listing only of dendrogram fusions

P plot only of dendrogram

B listing and plot of dendrogram fusions

N or blank no dendrogram required.

For the sake of compatibility, the previous option 'Y' is still valid and yields, as before, a plot (only) of the dendrogram.

(ii) In TAXAN both the plot of the dendrogram and the principal co-ordinate analysis have been made optional rather than automatic. See the manual for details. As before the changes are compatible with the specification in the manual draft.

(iii) The summed (S) option for 3D reduction is now implemented.

5 NEW EDITION OF EDITOR MANUAL

"EDIT - A Line Editor for the PDP10" MNT-6/ed3 is now on sale. The revision of the editor described has been on NEW: for several months. It will be moved to STD: on 27 September 1977.

Summary information may be obtained by the command "HELP EDIT" or "PRINT LPTS2:=HLP:EDIT.HLP".

6 NEW MANUALS - PLOTTING & MACRO PROGRAMMING

An updated version of MNT-11 "Plotting on the PDP10" is now available at a price of $4.50. This new version includes details of the ATOPLOT system for plotting graphs in one subroutine call **and** subroutines for plotting contours and surfaces.

A manual entitled "Macro-10 Assembly Language Programming" is available for $2.50. This manual was written by Mr. R. Cook of La Trobe University and could be of interest to anyone wanting to learn to program in MACRO.

7 SCIENTIFIC SUBROUTINE LIBRARY FILES

Two library systems of scientific subroutines exist on the system. The later and more reliable one is STA:IMSL.REL. This library is compiled for use with F10 compiled programs and should be used in preference to other library files.

The other library system derives from the IBM Scientific Subroutine Package and presently files related to it exist in a number of places. As from 3 October 1977, all these files will be replaced by a single library REL:SSP.REL and index HLP:SSP.DOC. This library is compiled for use with F40 compiled routines. All the functions available in this library are generally available from IMSL.

8 SUPERSEDED AND INACTIVE SOFTWARE

The following software items have been deleted from the system. In all cases, they represent either superseded items or ones which the frequency of access does not justify their retention. The intention behind the removal of the BMD programs, in particular, is not so much to discourage usage but to ensure that valuable online disk space is not wasted on infrequently accessed files.

Thus users who desire to use the listed systems should contact the Centre's program librarian, Geoff Vandenberg, to arrange for these to be made available.

OLD: SPEND, LINK, MINITR, MIDITR, MID40, TCS, AG11, ALG324, ALG432, ALG606

MAT: CPSOLV, MATINV, SMIS

LAN: SNOBOL

SIM: SETUP

STA: FAKAD, RNORMD, BMD03T, BMD07R, BMD07M, BMD08D, BMD08M

PLO: DEC, CONTUR, CGEN, CMAGEN, DRIVR, SURFAS

BCL: Essex BCPL system

Please note also the article on consolidation of SSP.

9 LOGOUT

On 14 September 1977 a new version of Logout was installed. This version corrects a number of minor problems but its prime intention is to implement additional control facilities for student accounting. With this new version, the cost at the end of a job will be posted to the student control file, thereby reducing the possibility of overspending.

10 NEW MONITOR COMMANDS TO USE XTEC

The last newsletter announced the release of an extended version of TECO, XTEC, on the utilities directory, UTI:. Some errors have been corrected since then. Now it is proposed for convenient use of this editor that the monitor should recognize XMAKE and XTECO commands.

```
XMAKE filespec        ;to create using XTEC
XTECO filespec        ;to edit using XTEC.
```

The new commands will be inluded in the next released version of the monitor.

11 I80 - AN INTEL 8080 CROSS ASSEMBLER

A Cross Assembler for 8080 assembler code is now available on MXI:. It is described in DOC:I80.DOC. The object (.HEX) file it produces is now compatible with INTERP, detailed below.

12 STANDARD INTEL SOFTWARE

Versions of standard Intel supplied software have become available and include the following:

a) MXI:MAC80

This is the standard Intel cross assembler with full macro generation capability.

b) MXI:INTERP

This interpreter allows online debugging and testing of 8080 systems. Assembled code from either MAC80 or I80 is acceptable input to it.

Documentation for these programs is available on request.

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